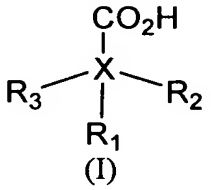
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A compound selected from the group consisting of compounds represented by the formula (I) and stereoisomers and pharmaceutically acceptable salts thereof



(I)

wherein said compound is an analogue of valproic acid and comprises between 5 and 13 carbon atoms;

wherein X=C;

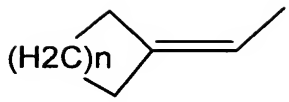
wherein R_1 is optionally present and when present is either H or F;

wherein, when R_1 is present, R_2 and R_3 are selected from the group consisting of a linear or branched C1 to C6 alkyl, a linear or branched C2 to C6 n-ene hydrocarbyl (where n = 1 – 5), a linear or branched C1 to C6 n-yne hydrocarbyl (where n = 1 – 5), a linear or branched C1 to C5 ether, a linear or branched C1 to C6 ketone, and $-CH_x-A$ where A = cyclic C3 to C8 hydrocarbyl and x = 0 – 3;

wherein, when R_1 is H, at least one of R_2 and R_3 are selectively fluorinated;

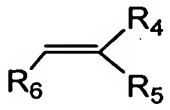
wherein, when R_1 is F, R_2 and R_3 comprise linear or branched alkenyl groups;

wherein, when R_1 is not present, R_2 is H, there is a double bond between R_3 and X, and R_3 is



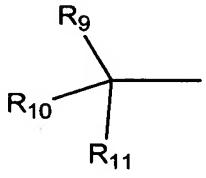
wherein n is 1 to 10;

or when R_1 is not present, there is a single bond between X and R_2, R_2 is



wherein R_4, R_5 and R_6 are selected from the group consisting of H, methyl, ethyl, F, NH_2, cyclopropyl, CF_3, and saturated or unsaturated cyclic (C3 to C8) hydrocarbyl, there is a double bond between R_3 and X, and R_3 is

or



wherein R_7 and R_8 are selected from the group consisting of H, methyl, ethyl, F, NH_2, cyclopropyl and CF_3, and R_9, R_{10}, and R_{11} are selected from the group consisting of H, methyl, ethyl, F, NH_2, cyclopropyl and CF_3.

2. (original) The compound as defined in claim 1, wherein the total number of carbon atoms in said compound is between 6 and 10.

3. (original) The compound as defined in claim 2, wherein the total number of carbons in said compound is 8.

4. (original) The compound as defined in claim 1, wherein said compound has multiple sites of alkene or alkyne unsaturation.

5. (original) The compound as defined in claim 1, wherein R_2 and R_3 are selected from the group consisting of propyl, propenyl and propynyl substituents.

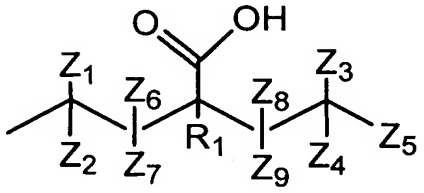
6. (original) The compound as defined in claim 5, wherein R_2 and R_3 are selectively fluorinated at one or more secondary carbon atoms.

7. (original) The compound as defined in claim 6, wherein at least one or more of said secondary carbon atoms is monofluorinated.

8. (original) The compound as defined in claim 6, wherein at least one or more of said secondary carbon atoms is difluorinated.

9. (original) The compound as defined in claim 1, wherein R_2 and R_3 are selectively fluorinated linear or branched alkyl or alkenyl groups having 1 to 6 carbons atoms.

10. (original) The compound as defined in claim 1, wherein R_1 is H and R_2 and R_3 each comprise an optionally substituted alkyl group, said compound having the formula (II)



(II)

wherein at least one of Z_1, Z_2, Z_3, Z_4, Z_5, Z_6, Z_7, Z_8, and Z_9 is F and Z_5 is CH_3.

11. (original) The compound as defined in claim 10, wherein Z_1 and Z_2 are F and Z_3

and Z_4 are H.

12. (original) The compound as defined in claim 10, wherein Z_1, Z_2, Z_3 and Z_4 are F.

13. (original) The compound as defined in claim 10, wherein Z_1, Z_2, Z_8, and Z_9 are F.

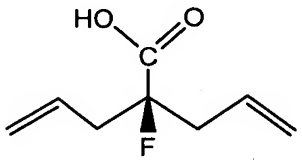
14. (original) The compound as defined in claim 10, wherein Z_1 and Z_2 are F and Z_3 and Z_4 together form a =O group.

15. (original) The compound as defined in claim 10, wherein Z_6 and Z_7 are F and Z_8 and Z_9 are H.

16. (original) The compound as defined in claim 10, wherein Z_6, Z_7, Z_8 and Z_9 are F.

17. (original) The compound as defined in claim 10, wherein Z_6 and Z_7 are F and Z_8 and Z_9 together form a =O group.

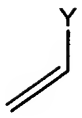
18. (original) The compound as defined in claim 1 wherein R_1 is F and R_2 and R_3 each comprise an optionally substituted alkenyl group, said compound having the formula (III)



(III)

19. (original) The compound as defined in claim 5 wherein the terminal carbon of the propyl, propenyl and propynyl substituent is fluorinated.

20. (original)The compound as defined in claim 1 wherein one of R_2 and R_3 comprises a



moiety, wherein Y is selected from the group consisting of CF_3, CF_2H, and CFH_2, and the other of R2 and R3 comprises a linear or branched alkyl group.

21. (original) The compound as defined in claim 1, wherein said compound comprises an optionally fluorinated dialkenyl chain.

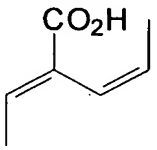
22. (original) The compound as defined in claim 1, wherein said compound comprises a C1 to C3 hydrocarbyl group.

23. (original) The compound as defined in claim 1, wherein n is between 4 and 8.

24. (original) The compound as defined in claim 23, wherein n is 4 or 5.

25. (original) The compound as defined in claim 1, wherein said compound is a diene having an E,Z configuration.

26. (original) The compound as defined in claim 1, wherein R_1 is absent and R_2 and R_3 are unsaturated groups, said compound containing a backbone of formula IV



(IV)

wherein the backbone is optionally substituted by H, F, Me, Et, NH_2, or C1 to C3 hydrocarbyl groups.

27. (original) The compound as defined in claim 1, wherein said compound is selected from the group consisting of

4,4-difluoro-2-propylpentanoic acid,

3,3-difluoro-2-propylpentanoic acid,

2,3,3-trifluoro-2-propylpentanoic acid,

2,4,4-trifluoro-2-propylpentanoic acid,
2-(3,3,3-trifluoropropyl)-4,4-difluoropentanoic acid,
2-(3,3,3-trifluoropropyl)-3,3-difluoropentanoic acid,
2-(2,2-difluoropropyl)-4,4-difluoropentanoic acid,
2-(1,1-difluoropropyl)-3,3-difluoropentanoic acid,
2-(2,2-difluoropropyl)-3,3-difluoropentanoic acid,
4,4-difluoro-2-(2-oxopropyl)pentanoic acid,
4,4-difluoro-2-(2-oxapropyl)pentanoic acid,
2-(2,2-difluoropropyl)pent-3-ynoic acid,
2-(1,1-difluoropropyl)pent-3-ynoic acid,
(3E)-2-(2,2-difluoropropyl)pent-3-enoic acid,
(3Z)-2-(2,2-difluoropropyl)pent-3-enoic acid,
2-(2,2-difluoropropyl)pent-4-enoic acid,
2-(2,2-difluoropropyl)pent-4-enoic acid,
(3E)-2-(1,1-difluoropropyl)pent-3-enoic acid,
(3Z)-2-(1,1-difluoropropyl)pent-3-enoic acid,
2-(1,1-difluoropropyl)pent-4-enoic acid,
2-(1,1-difluoropropyl)pent-4-enoic acid,
2-Allyl-2-fluoropent-4-enoic acid,
(2E)-4,4-difluoro-2-propylpent-2-enoic acid
(2Z)-4,4-difluoro-2-propylpent-2-enoic acid,
2-propyl-3-(trifluoromethyl)but-3-enoic acid,
2-iso-propyl-3-(trifluoromethyl)but-3-enoic acid,
2-butyl-3-(trifluoromethyl)but-3-enoic acid,
2-sec-butyl-3-(trifluoromethyl)but-3-enoic acid,
4,4-difluoro-(2-cyclopropylmethyl)pentanoic acid,
4,4-difluoro-(2-cyclobutylmethyl)pentanoic acid,
4,4-difluoro-(2-cyclopentylmethyl)pentanoic acid,
4,4-difluoro-(2-cyclohexylmethyl)pentanoic acid,
3,3-difluoro-(2-cyclopropylmethyl)pentanoic acid,
3,3-difluoro-(2-cyclobutylmethyl)pentanoic acid,
3,3-difluoro-(2-cyclopentylmethyl)pentanoic acid,
3,3-difluoro-(2-cyclohexylmethyl)pentanoic acid,
(2E)-4-Cyclopentylidenebut-2-enoic acid,

(2E)-4-Cyclohexylidenebut-2-enoic acid,
(2E)-4-Cycloheptylidenebut-2-enoic acid,
(2E)-4-Cyclooctylidenebut-2-enoic acid,
(2Z)-4-cyclopentylidenebut-2-enoic acid,
(2Z)-4-Cyclohexylidenebut-2-enoic acid,
(2Z)-4-Cycloheptylidenebut-2-enoic acid,
(2Z)-4-Cyclooctylidenebut-2-enoic acid,
(2E)-4-methyl-2-[(1Z)-prop-1-enyl])pent-2-enoic acid,
(2E)-2-(2-methylprop-1-enyl)pent-2-enoic acid,
(2E)-2-(2-methylprop-1-en-1-yl)pent-2-enoic acid, and
(2E)-4-methyl-2-[(1Z)-prop-1-en-1-yl]pent-2-enoic acid.

28. (currently amended) A method of ~~using a compound according to any one of claims 1 to 27 to treat~~ treating a patient having a condition responsive to valproic acid therapy comprising administering a therapeutically effective amount of a compound according to claim 1 .

29. (original) The method of claim 28, wherein said condition is a neuroaffective disorder selected from the group consisting of seizures, epilepsy, bipolar disease and migraine headaches.

30. (currently amended) A method of reducing seizure activity in a mammal comprising administering to said mammal a therapeutically effective amount of a compound according to ~~any one of claims~~ claim 1 ~~to 27~~.

31. (currently amended) A pharmaceutical composition comprising an effective amount of a compound according to ~~any one of claims~~ claim 1 ~~to 27~~ together with a pharmaceutically effective carrier or at least one pharmaceutically acceptable additive.

32. (cancelled)

33. (cancelled)

34. (cancelled)

35. (currently amended) A prodrug transformable *in vivo* to a compound according to ~~any one of claims~~ claim 1 ~~to 27~~.

36. (original) A prodrug according to claim 35, comprising esters or amides of said compound.

37. (original) A prodrug according to claim 35, comprising a salt of said compound.

38. (original) A prodrug according to claim 37, comprising a sodium salt of said compound.

39. (currently amended) A ~~use of a prodrug according to any one of claims claim 35 to 38 to treat~~ method of treating a patient having a condition responsive to valproic acid therapy comprising administering a prodrug according to claim 35.

40. (currently amended) A ~~use~~ method according to claim 39, wherein said condition is a neuroaffective disorder selected from the group consisting of seizures, epilepsy, bipolar disease and migraine headaches.

41. (original) A method of synthesizing an analogue of valproic acid comprising the steps set forth in any one of Schemes 4, 5, 6, 7, 8, 9, and 10.

42. (new) A method of treating a patient having a condition responsive to valproic acid therapy comprising administering a therapeutically effective amount of a compound according to claim 27.

43. (new) A pharmaceutical composition comprising an effective amount of a compound according to claim 27 together with a pharmaceutically effective carrier or at least one pharmaceutically acceptable additive.

44. (new) A prodrug transformable *in vivo* to a compound according to claim 27.